

REMARKS

By the present amendment, claim 1 has been amended to further clarify the concepts of the present invention. An apparent typographical error has been corrected in claim 7. In addition, independent claims 37 and 38 have been added. Claims 1-38 are pending. By a separate sheet attached hereto, the fee necessitated by the presentation of additional claims has been calculated and a check in that amount is enclosed.

It is submitted that these amendments to the claims are helpful in distinguishing the subject claims over the cited prior art and do not raise new issues which would require further consideration and/or search. In addition, it is submitted that such amendments place the application in better form for appeal by materially reducing or simplifying the issues for appeal. In view of the above, it is submitted that entry of the above amendments is in order and such is respectfully requested.

In the Office Action, claims 1-36 again were rejected under 35 USC § 103(a) as being unpatentable over the patent to Kawagoe et al in view of the patent to Terada et al.

In making this rejection, it basically was asserted that the cited Kawagoe et al patent teaches flame-sprayed copper based compositions with ranges for disclosed components overlapping those as claimed. Further, it was alleged that each cited patent teaches to selectively melt or unmelt alloying elements. However, it was acknowledged that the Kawagoe et al patent does not teach feeding the copper and the aluminum separately, but it was alleged that the Terada et al patent supplies this deficiency since it teaches use of mixtures of particles for flame spraying. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

It is submitted that the cited patents to Kawagoe et al and Terada et al, whether taken singly or in combination, do not teach or suggest the presently claimed invention. The Kawagoe et al patent teaches a swash plate having a flame sprayed layer of copper-based alloy which contains 0.5 to 50% of one or more of not more than 40% of lead, not more than 30% of tin, not more than 0.5 of phosphorous, not more than 15% aluminum, not more than 10% of silver, not more than 5% of silicon, nor more than 5% of manganese, not more than 5% of chromium, not more than 20% of nickel, and not more than 30% of

zinc.

The Terada et al patent discloses a brazable aluminum material composed of a core of aluminum and a brazing agent layer consisting of a brazing agent thermally sprayed onto a surface of the core. The brazing agent sprayed onto the core is an Al-Si alloy and/or a mixture of Al powder and Si powder. A number of unmelted particles of brazing agent are present in the brazing agent layer. Therefore, four phases, i.e., a melted Al phase, an unmelted Al phase, a melted Si phase, and unmelted Si phase, may be present in the brazable aluminum material according to the Terada et al patent.

It was asserted in the Action that if the Al powder and Si powder of the Terada et al patent are replaced with an Al-alloy powder and Cu alloy powder according to the Kawagoe et al patent, the subject matter of claim 1 according to the present invention may be obtained. More particularly, it was asserted that the Kawagoe et al patent teaches flame spraying of a copper and aluminum alloy where a portion is melted and a portion is not melted. This teaching was then substituted into the teachings of the Terada et al

patent so that a feed which is to a flame spraying operation can be elemental copper or a copper alloy as one feed component, and aluminum or aluminum or a aluminum alloy as the other feed component. Hence, the resultant flame sprayed material, according to the Action, would have copper as an unmelted phase as well as copper as a melted phase along with aluminum as an unmelted phase and aluminum as a melted phase thereby meeting the conditions of independent claims 1 and 30.

It is submitted that the basis for the combination of the teachings of the two patents would not be evident to one of ordinary skill in the art and thus is based on a prohibited hindsight reconstruction. An key assumption made in the rejection is that one of ordinary skill in the art who was aware of the composition of the the Kawagoe et al patent, and desired to make the composition according to the Terada et al patent, would separate the feed components into a copper component (copper or copper alloy) and an aluminum component (aluminum or an aluminum alloy). It must be remembered that the Kawagoe

et al patent teaches a composition containing copper-based alloy which contains 0.5 to 50% of one or more of lead, tin, phosphorous, aluminum, silver, silicon, manganese, chromium, nickel, and zinc. Thus, the Kawagoe et al patent teaches copper based alloys having from one to ten additional components.

As can be noted from the above claim amendments, claim 1 now recites that the subject flame-sprayed copper-aluminum composite material is formed by flame-spraying an aluminum alloy powder and a copper alloy powder. Therefore, one of ordinary skill in the art, using the reasoning advanced in the Action, would have to go through the following sequence of steps. That is, one of ordinary skill would have to (1) select at least one of the above ten components according to the Kawagoe et al patent to form an alloy with copper for a copper alloy powder (2) then specifically select aluminum from the remaining nine components, (3) alloy this aluminum with another component to form the aluminum alloy powder, and (4) then combine the two powders by flame spraying as taught by the Terada et al patent to allegedly achieved the presently claimed invention.

It is submitted that the combined teachings of the cited patents lacks sufficient motivation to do so, particularly for selecting aluminum to form the basis for the second alloy powder as claimed. Thus, in view of the above, it is submitted that the combination of the two cited patents would not be evident to one of ordinary skill and such would not achieve the presently claimed invention.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claims 1 through 38 over the cited patents are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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